

The following is a complete listing of all claims in the application, with an indication of the status of each:

**Listing of claims:**

1 (Currently amended). ~~An~~ A computer-implemented auction method for holding an auction for a product comprising the steps of:

receiving bids from at least one computer or from multiple computers within a network of computers, for each product type of multiple product types in a transaction, that include minimum desired volumes and maximum desired volumes and evaluation prices for said product;

generating, using computing resources, a finite set of bids that include as an element said bids that were received from said at least one computer or from multiple computers within said network of computers; ~~and~~

employing dynamic programming using said computing resources to generate, using said ~~bid set~~ bids that were received in said receiving bids step, a subset of bids wherein ~~the~~ a maximum gain is obtained within a range represented by ~~the~~ a count of said product available for sale; and

identifying or accepting a bid from said subset of bids.

2 (Original). The auction method according to claim 1, wherein said evaluation prices for said product are represented as a non-linear function relative to the desired volume of said product type in said transaction.

3 (Currently amended). The auction method according to claim 1, further comprising the steps of:

allocating a two-dimensional array V to a memory area by using said dynamic programming using said computing resources;

5           initializing said two-dimensional array V; and  
6           recursively solving the recursive equation for said two-dimensional array V,  
7           wherein

8           
$$V(k, j) = \max \{V(k+1, j), V(k, j+1), \max_{l_k \leq n \leq h_k} \{V(k+1, j+x) + e_k(x)\}\}$$

9           is used as the recursive equation, where V(k, j) denotes said two-dimensional array V  
10          populated with said evaluation prices; where k denotes an integer equal to or greater  
11          than 1 and equal to or smaller than n; j denotes an integer equal to or greater than 0  
12          and equal to or smaller than s; n denotes the number of bids; s denotes the number of  
13          products available for the transaction;  $e_k$  denotes the evaluation price when x units of  
14          products are purchased according to the bid  $b_k$ ;  $l_k$  denotes the minimum volume of the  
15          bid  $b_k$ ; and  $h_k$  denotes the maximum volume of the bid  $b_k$ .

1          4 (Original). The auction method according to claim 3, wherein a bid according to  
2          which said product is optimally distributed is selected by back tracking of said  
3          two-dimensional array V from the element on the smallest row and in the smallest  
4          column.

1          5 (Currently amended). The auction method according to claim 1, further comprising:  
2                  allocating two-dimensional arrays V and Q to a memory area by using said  
3          dynamic programming;  
4                  initializing said two-dimensional arrays V and Q; and  
5                  recursively solving recursive equations for said two-dimensional arrays V and  
6          Q using said computing resources,  
7                  wherein said evaluation prices for said product represent a linear function  
8          relative to the volumes for said product desired for said transaction, and  
9          wherein

$$V(k, j) := \begin{cases} V(k+1, j) \\ V(k, j+1) \\ V(k, j+1) + e_k & \text{if } l_k \leq Q(k, j+1) < h_k \\ V(k+1, j+1) + e_k l_k \end{cases}$$

$$Q(k, j) := \begin{cases} Q(k, j+1) + 1 & \text{(if } V(k, j) = V(k, j+1) + e_k) \\ l_k & \text{(if } V(k, j) = V(k+1, j+1) + e_k l_k) \\ Q(k, j+1) & \text{(if } V(k, j) = V(k, j+1)) \\ 0 & \text{(otherwise)} \end{cases}$$

is employed as said recursive equation, where  $V(k, j)$  denotes said two-dimensional array  $V$  populated with said evaluation prices; where  $Q(k, j)$  denotes said two-dimensional array  $Q$  populated with said count of said product available for sale;  
 where  $k$  denotes an integer equal to or greater than 1 and equal to or smaller than  $n$ ;  $j$  denotes an integer equal to or greater than 0 and equal to or smaller than  $s$ ;  $n$  denotes the number of bids;  $s$  denotes the number of products available for the transaction;  $e_k$  denotes the evaluation price when  $x$  units of products are purchased according to the bid  $b_k$ ;  $l_k$  denotes the minimum volume of the bid  $b_k$ ; and  $h_k$  denotes the maximum volume of the bid  $b_k$ .

6 (Original). The auction method according to claim 5, wherein a bid according to which said product is optimally distributed is selected by back tracking of said two-dimensional array  $V$  from the element on the smallest row and in the smallest-column.

7-12. Canceled

1 13 (Currently amended). An auction system of computing resources for holding an  
2 auction for a product comprising:

3 means for receiving bids from at least one computer or from multiple  
4 computers within a network of computers, for each product type of multiple product  
5 types in a transaction, that include minimum desired volumes and maximum desired  
6 volumes and evaluation prices for said product;

7 means for generating, using computing resources, a finite set of bids that  
8 include as an element said bids that were received from at least one computer or from  
9 multiple computers within said network of computers; and

10 means for employing dynamic programming using said computing resources  
11 to generate, using said ~~bid-set~~ bids that were received from said at least one computer  
12 or from multiple computers within said network of computers, a subset of bids  
13 wherein ~~the~~ a maximum gain is obtained within a range represented by ~~the~~ a count of  
14 said product available for sale; and

15 means for identifying or accepting a bid from said subset of bids.

1 14 (Original). The auction system according to claim 13, wherein said evaluation  
2 prices for said product are represented as a non-linear function relative to the desired  
3 volume of said product type in said transaction.

1 15 (Currently amended). The auction system according to claim 13, further  
2 comprising:

3 means for allocating a two-dimensional array V to a memory area by using  
4 said dynamic programming using said computing resources;

5 means for initializing said two-dimensional array V;

6 and recursively solving the recursive equation for said two-dimensional array  
7 V, wherein

8  $V(k, j) := \max \{V(k+1, j), V(k, j+1), \max_{1 \leq n \leq h_k} \{V(k+1, j+x) + e_k(x)\} \}$

9 is used as the recursive equation, where  $V(k, j)$  denotes said two-dimensional array  $V$   
10 populated with said evaluation prices; where  $Q(k, j)$  denotes said two-dimensional  
11 array  $Q$  populated with said count of said product available for sale; where  $k$  denotes  
12 an integer equal to or greater than 1 and equal to or smaller than  $n$ ;  $j$  denotes an  
13 integer equal to or greater than 0 and equal to or smaller than  $s$ ;  $n$  denotes the number  
14 of bids;  $s$  denotes the number of products available for the transaction;  $e_k$  denotes the  
15 evaluation price when  $x$  units of products are purchased according to the bid  $b_k$ ;  $l_k$   
16 denotes the minimum volume of the bid  $b_k$ ; and  $h_k$  denotes the maximum volume of  
17 the bid  $b_k$ .

1 16 (Original). The auction system according to claim 15, further comprising:  
2 means for selecting a bid according to which said product is optimally  
3 distributed by back tracking of said two-dimensional array  $V$  from the element on the  
4 smallest row and in the smallest column.

1 17 (Currently amended). The auction system according to claim 13, further  
2 comprising:  
3 means for allocating two-dimensional arrays  $V$  and  $Q$  to a memory area by  
4 using said dynamic programming using said computing resources;  
5 means for initializing said two-dimensional arrays  $V$  and  $Q$ ;  
6 and means for recursively solving recursive equations for said  
7 two-dimensional arrays  $V$  and  $Q$ , wherein said evaluation prices for said product  
8 represent a linear function relative to the volumes for said product desired for said  
9 transaction, and  
10 wherein

$$V(k, j) := \begin{cases} V(k+1, j) \\ V(k, j+1) \\ V(k, j+1) + e_k & \text{if } l_k \leq Q(k, j+1) < h_k \\ V(k+1, j+1) + e_k l_k \end{cases}$$

$$Q(k, j) := \begin{cases} Q(k, j+1) + 1 & \text{(if } V(k, j) = V(k, j+1) + e_k) \\ l_k & \text{(if } V(k, j) = V(k+1, j+1) + e_k l_k) \\ Q(k, j+1) & \text{(if } V(k, j) = V(k, j+1)) \\ 0 & \text{(otherwise)} \end{cases}$$

is employed as said recursive equation, where  $V(k, j)$  denotes said two-dimensional array  $V$  populated with said evaluation prices; where  $Q(k, j)$  denotes said two-dimensional array  $Q$  populated with said count of said product available for sale;  
 where  $k$  denotes an integer equal to or greater than 1 and equal to or smaller than  $n$ ;  $j$  denotes an integer equal to or greater than 0 and equal to or smaller than  $s$ ;  $n$  denotes the number of bids;  $s$  denotes the number of products available for the transaction;  $e_k$  denotes the evaluation price when  $x$  units of products are purchased according to the bid  $b_k$ ;  $l_k$  denotes the minimum volume of the bid  $b_k$ ; and  $h_k$  denotes the maximum volume of the bid  $b_k$ .

(Original). The auction system according to claim 17, wherein a bid according to which said product is optimally distributed is selected by back tracking of said

3 two-dimensional array V from the element on the smallest row and in the smallest  
4 column.

1 19-24. Canceled

1 25 (Currently amended). A computer-readable storage medium on which a program  
2 for holding an auction for a product is stored, said program ~~permitting~~ enabling a  
3 computer computing resources to perform:

4 a ~~function~~ process for receiving bids from at least one computer or from  
5 multiple computers within a network of computers, for each product type of multiple  
6 product types in a transaction, that include minimum desired volumes and maximum  
7 desired volumes and evaluation prices for said product;

8 a ~~function~~ process for generating, using computing resources, a finite set of  
9 bids that include as an element said bids that were received from said at least one  
10 computer or from multiple computers within said network of computers; ~~and~~

11 a ~~function~~ process for employing dynamic programming using said computing  
12 resources to generate, using said ~~bid-set~~ that were received while using said process  
13 for receiving bids, a subset of bids wherein ~~the~~ a maximum gain is obtained within a  
14 range represented by ~~the~~ a count of said product available for sale; ~~and~~

15 a process for identifying or accepting a bid from said subset of bids.

1 26. Canceled

1 27 (Currently amended). ~~An~~ A computer-implemented auction method for holding an  
2 auction for a product comprising the steps of:

3 receiving bids from at least one computer or from multiple computers within a  
4 network of computers, for each product type of multiple product types in a  
5 transaction, that include a condition concerning said product;

6           generating, using computing resources, a finite set of bids that include as an  
7           element said bids that were received from said at least one computer or from multiple  
8           computers within said network of computers; and  
9           employing dynamic programming using said computing resources to generate,  
10          using said ~~bid set~~ bids that were received in said receiving bids step, a subset of bids  
11          wherein ~~the~~ a maximum gain is obtained within a range represented by ~~the~~ a count of  
12          said product available for sale; and  
13          identifying or accepting a bid from said subset of bids.